



Epiphany

Software and Solutions for Industry and Society

Presents

A perspective on Open Banking

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Contents

What is Epiphany?	3
What is Epiphany's purpose?.....	3
What is Dedalo?.....	3
Would open banking provide meaningful benefits to and improve outcomes for Canadians? In what ways? .	5
MANAGEMENT OF RISKS	7
FEDERAL GOVERNMENT'S STEPS TO TAKE.....	8
CONCLUSIONS.....	10

EPIPHANY EXECUTIVE SUMMARY

What is Epiphany?

Epiphany is a software and solutions company founded in 2016, based on a unique mastery of designing and developing software for highly regulated industries where the margin for error is zero. Epiphany's staff has been shaping banking and finance systems for over 100 years collectively, and helping Fintech providers, financial data vendors, institutions and banks envision, fulfill and deploy their dreams: they have participated and conducted projects for Intesa San Paolo, Central Bank of Russia, UBI Banca, Monte Paschi Siena, Banca Widiba, Banca Carige and many others, as well as collaborating with the most important Government Agencies in Italy.

What is Epiphany's purpose?

First, Epiphany has applied its capabilities to solve for the sizable and specific software needs in European banking, as a result of the new PSD2 regulatory requirements and Open Banking in general. We have packaged this system into a comprehensive platform called "Dedalo". From there, Epiphany intends to apply its expertise and platform to other sectors as they open up and modernize for the new digital era.

What is Dedalo?

Today, a fundamental re-platforming is happening in the banking sector in Europe. PSD2 is revolutionizing the European Payment Industry. For the first time ever, regulators are asking banks to "open-up" versus "tighten-down", in the hopes of creating more choice for consumers, and ease or ubiquitous banking.

To help this change happen, Epiphany has created the platform that will power the next stage of Open Banking in Europe and beyond: Dedalo.

Dedalo is able to simplify Open Banking and the infrastructure needed to support it by enabling sustainable PSD2 compliance and also giving small and medium banks the same access to technology that delivers agility, resources and speed to compete with big banks and Third-Party Payment Providers ("TPP"). Its strengths are custom performance analytics, excellent TPP and fraud management and dispute resolution which give Dedalo the full coverage of all security requirements thanks to its modern microservices architecture and system monitoring.

PREFACE: the banking evolution

21st century consumers are evolving: millennials, but really all of us, have much higher expectations of our service providers, given the technology we carry in our hands today, has the same compute power of the most powerful NASA computer that put people on the moon in the 60's.

Consumers want choice, rich and personalized experiences, as well as instant gratification, including those services we get from our bankers. Everything matters to us – the look and feel of the experience, ease of use, availability, performance, speed and personalization.

This consumer maturity/evolution is bringing it with material change in regulations and businesses. But moreover, it will bring about new players, new investment, new partnerships and entirely new eco-systems, especially players that understand how to leverage technology to create new services quickly, deploy them often, and leverage technology to improve the overall customer experience, think AR/VR, motion sensing, voice and facial recognition, etc.

In order for traditional (incumbent) banks to remain active and relevant in this new world, they must create the same type of “cool factor” that the emerging Third-Party Providers (TPP's) offer and must keep their customers engaged tightly with them. Losing critical touchpoints with customers will spell commoditization and possibly complete irrelevance (see Ms. Joanne Moretti's article entitled [“Bank or Vault”](#) from February 8th, 2019). Alternatively, incumbent banks can shift into “wholesaler” status, and learn to develop new business models to monetize and serve the TPP's.

One way or another, standing still is not an option.

In other words, they need to get on the band wagon, modernize systems, and act like the new TPP's in terms of customer experiences, given these TPP's are allowed access to client data, (if the client so chooses) based on the new Payment Services Directive 2 (PSD2) or they find entirely new business models to the TPP's, or do nothing and face becoming a commodity “vault” that holds and moves money around as needed, with no access to clients.

Net/net, what PSD2 portends is nothing short of a fundamental revolution in the way banks operate and integrate with the world. Banks could be attacked as PSD2 takes hold and people switch to non-traditional banking services. Bank products and services will be “unbundled” as consumers choose from single service or “discreet” service providers. Ergo, banks will struggle to differentiate and avoid becoming invisible. Below is a table that outlines the 4 different ways, traditional banks can and are being attacked in Europe:

Banks Under attack by those who weaponize tech

Attack Vector	Disintermediation	Unbundling	Commoditization	Invisibility
Description	Banks are losing access to customers as PSD2 takes hold and people switch to non-traditional channels/sources	Banking products and services are being “unbundled” as consumers choose from single service or “discreet service providers.	Banks are struggling to differentiate themselves as consumers compare banking products online with great transparency.	Banks are losing brand awareness and becoming invisible as consumers can access financial services without knowing the brand, or PSD2 makes data open to everyone.
Example	Consumers can borrow money online without reaching out to banks. e.g. the Lending Club .	Deposit and payment are unbundled as consumers leverage third party payment solutions, eg. PayPal	Consumers can compare different deposit products and choose the one with highest interest rate: SavingGlobal	Consumers can access unbranded micro loans via social networks, eg. WeChat Welidai .

PSD2 will therefore create banking eco-systems and ultimately banking ubiquity, where consumers have the ultimate choice and flexibility, and bank on their own terms, and where only the best digital players who willing cooperate with TPPs as well as leverage technology to the nth degree, will survive and thrive. So how ready are Canada's banks for PSD2-like requirements to come along, is the real question? Is innovation in the latest 5G, AR/VR, Voice Recognition, Data Management, Cloud, mobile, etc. investment happening? Are consumers satisfied with their current banking experiences, truly? There are many questions, through research and consumer feedback, that need to be asked.

Would open banking provide meaningful benefits to and improve outcomes for Canadians? In what ways?

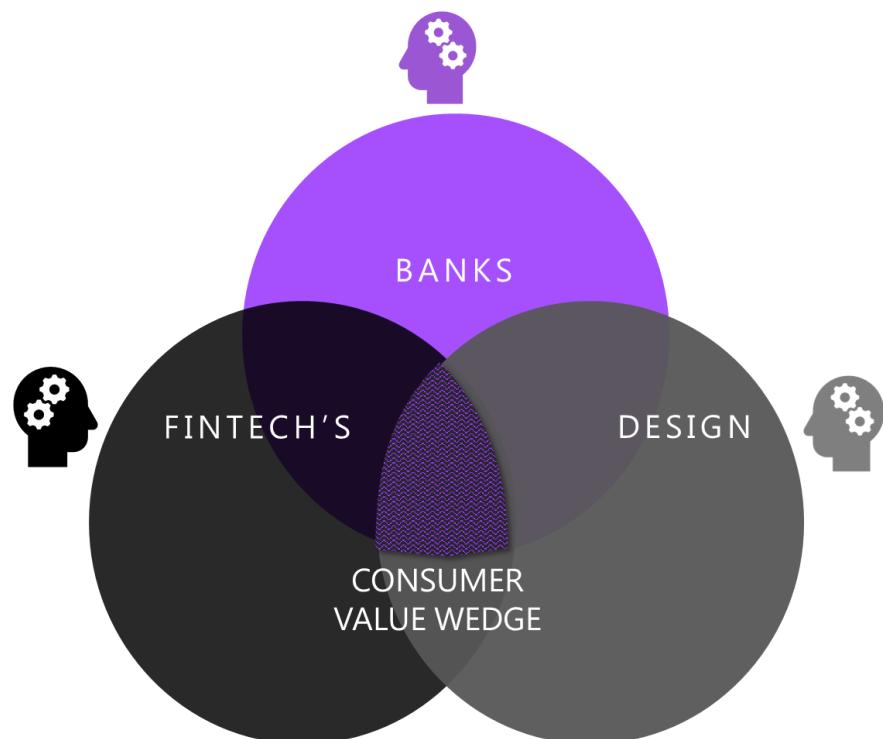
As mentioned above, PSD2 in Europe is all about the consumer, and giving them flexibility, choice, great experiences, and control. It was determined that humans should be in charge of how humans want to bank, and not the other way around.

So Open Banking can surely provide meaningful benefits and improve outcomes for Canadians in many ways. Below we will outline all of the meaningful benefits we are seeing emerge in Europe.

Products will respond better to consumers

The overall customer experience will be improved and become richer through customized and relevant products. Banks and the financial technology industry (“Fintech”) as well as the “design” industry should all unite to offer personalization to their customers, working together to deliver greater customer experiences. We are one of the few Open Banking software companies for example, to house a design group, developers and bank domain expertise all in one studio, to ensure a cross-functional collaboration and the very best outcomes for our banking clients.

Design and Fintech perfectly compliment banks because they have the banking industry know-how coupled with extraordinary software ingenuity and design skills to bring about the best possible customer experience. We believe a “consumer value wedge” will emerge when these three groups come together. In other words, we don’t promote banks doing this on their own, or software companies doing it on their or even design companies working in a vacuum. For Open Banking to be successful, it’s technology, banking and experience design that must come together to ensure the best possible outcomes.



Competition and New Business Models will emerge

The competition between banks and non-banks will be created: competition will reduce payment and services costs and TPPs will guarantee an economically diversified market, reduced costs and better products to satisfy customers. At the same time, as mentioned previously, roles may shift and a wholesale/distributor model may take effect. Where traditional banks learn the art and science behind delivering services and data to the TPP world for a price.

Speed

Speed will be guaranteed: banks and Fintech will be able to assure to their customers brand new products in less time. Creating new products will take only weeks or months because TPPs are agile in moving in the Open Banking world and the legal framework gives them access to data. In this way bureaucracy will be dispatched only once and speed to market will be a new concept for banks.

Innovation

Innovation in this new banking era will thrive, as mentioned previously, TPP's will create healthy competition, and force more traditional banks to innovate faster, and leverage technologies better to create new and more meaningful experiences. Motion sensing, augmented reality, virtual reality, facial recognition, voice recognition, wearables, artificial intelligence and all manner of technology will be applied and will leverage the new 5G infrastructure being implemented by the likes of Bell Canada and Telus, in order to captivate consumers. So, all the stars are aligning from a technology perspective, telecommunications and networking perspective, competition perspective and consumer expectation perspective to drive immense innovation in the banking sector, which means a thriving economy for Canada.

Choice & Ubiquity

This innovation will perpetuate choice for consumers and will also drive ubiquity as far as banking is concerned. Banks will come with you, not you to banks. At hotels, hockey games, on the beach, in an airplane, at an amusement park ride, paying for merchandise and transacting anywhere, whether its immediate payments or micro-loans, will be readily available. Again, banking will become ubiquitous.

MANAGEMENT OF RISKS

In order for Canadians to feel confident in an open banking system, how should risks related to consumer protection, privacy, cyber security and financial stability be managed?

Together with opportunities and modernization, Open Banking brings some risks. Both banks and customers can face these risks.

Starting from the assumption that Open Banking – and everything related to it – is relatively new, one of the possible risks is that there could be lots of trials and mistakes before finding the right way to make every process work.

Most of the risks are related to security and cybersecurity: with a more frequent use of the web to keep trace of payments and accounts, also cyber threats are rising: data loss, identity theft, data protection violations, money laundering and financing terrorism are some of the risks related to cyber security. For this reason and for the risk of information asymmetry, banks are going to find hard to gain customer confidence and at the same time comply with the regulation.

Banks are forced to counteract in order to not lose their reputation and trusted brand. So, banks and FinTech are facing Open Banking assuring:

Privacy & Protection

Thanks to a mechanism of dispute resolution banks and FinTech will be able to safeguard consumer protection. They will have to guarantee reliable guidelines for the resolution of problems process. They must also obtain a framework for security, outlined by the legal framework. Another important step to guarantee privacy and protection to customers is the use of multiple consent mechanisms through which users enable data access to TPPs for Open Banking functions.

Cybersecurity

The antifraud mechanism produces monthly or weekly reports which will be sent to the National competent Authority designed. In order to guarantee the correct development of the process, a number of regulated nominated institutions will be in charge of managing transport layer security and payload.

Financial Stability

The customer's financial stability will be granted by onboarding procedures and certificates/licenses for TPPs through Audit mechanisms to monitor TPPs activities and mechanisms of capital insurance.

FEDERAL GOVERNMENT'S STEPS TO TAKE

If you are of the view that Canada should move forward with implementing an open banking system, what role and steps are appropriate for the federal government to take in the implementation of open banking?

In order for Canada to implement an Open Banking system, the Government should have a leading role

and implement several steps. The Government's role, in fact, is fundamental to ensuring a proper Open Banking implementation.

It is fundamental for the Government to establish a legal framework which regulates every institute involved; bank and TPP. This legal framework lays the foundations for the correct development of businesses and regulations and for the correct use of data. It is also important in order to safeguard customers data and identities.

The legal framework must contain the following guidelines:

1. Government must establish the competent Authorities which will report to the Central Authority. Main purpose of the Competent Authorities will be to assure the security of payments. In order to be able to satisfy their duty, they must:
 - Be informed about all the fraud levels established and they must report them to the Central Authority;
 - Be informed about Payment Initiation Services, Account Information Service Providers (AISP) and about identification and authentication procedures;
 - Have the power to exempt banks from providing it;
 - Monitor the dedicated interfaces for payment services;
 - Guarantee that PISPs and AISPs are not blocked or obstructed in the provision of services;
 - Establish common and secure open standards of communication by monitoring the quality of the review of these measures;
 - Supervise and monitor implementation and management of the communication interfaces;
 - Establish the rules for TPPs' certificates and protocols. Together with government they will create decrees for security, made of protocols and certificates (renewals included) for TPPs.
2. Government must establish a National Register for TPPs and Banks;
3. Government must establish and monitor API interfaces in order to facilitate up-to-date straight-through processing of data by industries. Government should, in this way, create an API Working Group to define standard API. Having the same TPPs APIs for every bank would fasten the go to market development and the basic interoperability would not change among banks. After the creation of the API Working Group, government should think of creating and publishing a catalogue for APIs. New API should be created and evaluated by the Working Group through "open for question" processes in order to let the Open Banking environment grow.
4. Government must nominate one or more society(ies) which, basing on the security standards established by the Central and the Competent Authorities release certificates and security components to institutes;
5. Government must establish a proper supervision entity which will monitor every facet of TPPs: its purpose will be to make sure that TPPs are correctly working for the sake of citizens and customers. This entity must be a Neutral Authority in order to avoid preferential treatments, e.g. the Central Bank;
6. It is important that stakeholders and TPPs are able to find any information they are looking for. In order to make this possible, it is fundamental for the government to create information instruments such as portals which enables stakeholders to find information about laws and best practice in order to facilitate roll out, and for TPPs to find information about how to get certificates. It could be an important instrument also for lawyers, who may find information about how to create business for

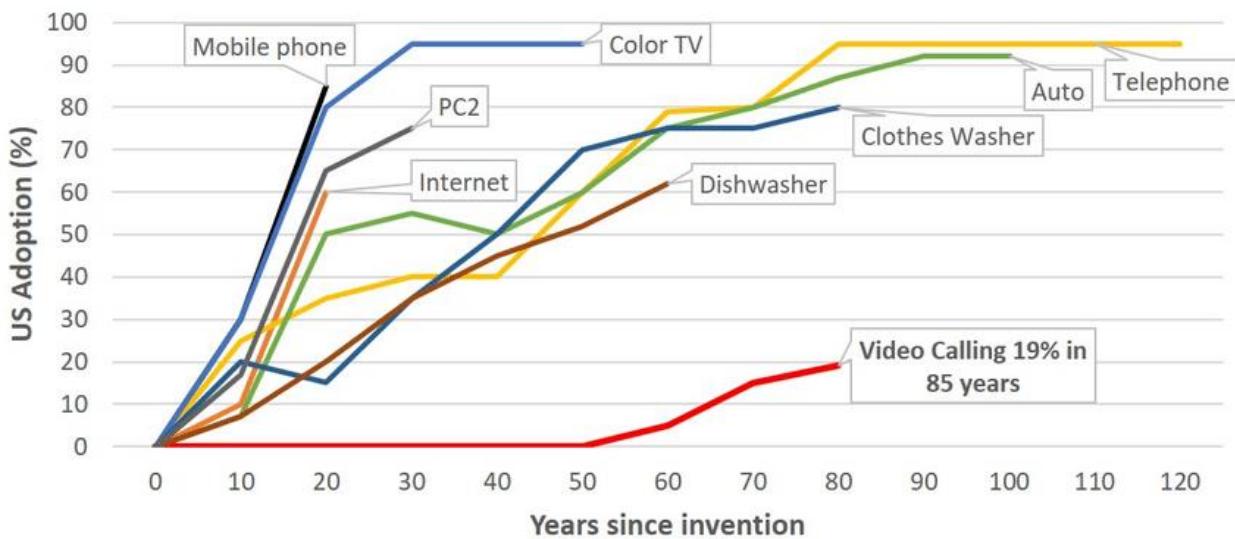
banks, TPP, consumers and open banking industries. This mean of information will guarantee transparency.

After having established the regulatory pattern, government should focus directly on its citizens because people need to be aware of the changes. Communications is key to success. Branding and proper awareness campaigns are key. Having the new approach correctly explained should help to speed the process of Open Banking, erasing every doubt about it encouraging citizens and consumers to opt for it.

The easier and faster way to do so is through awareness-raising campaigns within media such as television, social media, various publications/blogs, etc. to reach every part of the country. In addition to National campaigns, it is important for the government to reach people locally. Banks can be of great help in this sense, because through pamphlets, posters and direct talk they are able to reach people straight, clarifying their doubts and fears in person.

CONCLUSIONS

21st century has brought yields a completely new generation of consumers: millennials. This generation wants and needs specific goods and services, and wants them the way they want them, and generally wants them NOW. They are more technology savvy, and adopt new technologies, faster than any generation before them.



Banks have been at the forefront in the past. They have been here to lend money, and fuel innovation, growth, societies, infrastructure, you name it. For Banks to remain healthy and continue to fuel the next set of generations, they need to keep the pace with millennials and their “new competitors”, if they want to

survive. This is why it is absolutely incumbent on government, to help banks remain alive and thriving. And it is important for banks to get help from FinTech's, Design Firms and other groups that can support their transformation. Eco-systems are more important than competitors today, in fact if banks are aiming and targeting correctly, competitors should turn into partners and another part of their eco-system to reach consumers. Data driven, high speed innovation are table stakes in this new world. Altogether, banks, FinTech's, designers and other players can give to the next generations what they need: innovation, speed and security in Open Banking.

Open Banking will guarantee to Canadian consumers a large scale of benefits.

As we mentioned earlier, Canadians will benefit from more choice, better competitiveness, and better experiences. And cost reductions brought out by competitiveness will put more money back into Canadian wallets, and provide more disposable income, thereby creating a virtuous cycle of economic growth.

Safety will also be a huge part in this operation, because Open Banking, together with benefits brings also some risks. These risks regard especially security and cybersecurity. Cyber threats are rising, and the risks of data and identity loss or money laundering could be high if not faced in the right way.

It is essential, for the government, to establish a mechanism of dispute resolution, improved by reliable guidelines for the resolution of problem process, a framework for security and multiple consent mechanism. In this way privacy and protection of customers will be granted. It is also important to establish antifraud mechanisms which reports every fraud attempt to the competent Authorities instituted.

Finally, onboarding procedures and release of certificates and licenses to TPPs will guarantee to consumers financial stability. In order to guarantee transparency and security, every bank and TPP should be inserted in a National Register freely available for each citizen.

That stated, it is important to highlight every step the government should take in order to help the transition to Open Banking.

The first important thing for the government in order to reach the correct development of the Open Banking process is to establish a legal framework which regulates banks and institutes. Through this legal framework, the government will be able to decide some competent Authorities which have the purpose to assure the security of payments and report to the Central Authority.

Competent Authorities, then, have the power and the responsibility to yield certificates and security components to institutes. This way, TPPs must obtain certificates and licenses in order to operate. Then, they will be inserted in a National register together with banks in order to grant security while choosing. In this sense, it is fundamental to create portals for stakeholders, TPP and lawyers to find every information they could need.

Another primary need for government is to monitor API interfaces through an API working group which defines standard API and create a catalogue. This will make every process faster and more secure because every bank will share the same API.

Last but not least, government should focus directly on its citizens. In fact, while establishing all the regulations and entities it is important for the government to keep in mind its first and most important goal for what concerns Open Banking: creating community through transparency. It is of primary importance to create awareness-raising campaigns both at a National level and locally.

Creating awareness at a national level could be easily done through the use of media: television, social media and blogs can reach a large part of the population and make them think about all the benefits they will take advantage of if they only take the chance. Nevertheless, many people, mostly non-millennials, don't trust the media that much and must be persuaded through the mean they use the most: **their own bank**. Local banks could expose posters and present information brochures which explain all the benefits – and risks – of Open banking. Bank employees could also talk directly to their customers, inviting them to ask questions.

In the end, it is fundamental and possible for every country to enter the 21st century and guarantee what new customers need and want: Open Banking.

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Sincerely,
Paolo Spadafora, CEO

A handwritten signature in black ink, appearing to read "Paolo Spadafora".

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